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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/685,198	10/10/2000	John W. McCorkle	192504US8	4311
23400	7590	12/21/2004	EXAMINER WARE, CICELY Q	
POSZ & BETHARDS, PLC 11250 ROGER BACON DRIVE SUITE 10 RESTON, VA 20190			ART UNIT 2634	PAPER NUMBER

DATE MAILED: 12/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/685,198

Applicant(s)

MCCORKLE, JOHN W.

Examiner

Cicely Ware

Art Unit

2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 October 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-77 renumbered as 1-62 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 57 and 63-70 is/are allowed.
- 6) ☒ Claim(s) 1-3, 27-31, 58-62 and 71 is/are rejected.
- 7) ☒ Claim(s) 4-18, 22-26, 32-44 and 72-77 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 October 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 10, 2000 has been entered.

Response to Arguments

2. Applicant's arguments, see Pg. 21 of Applicant's Arguments or Remarks, filed October 21, 2004 with respect to the rejection(s) of claim(s) 1-77 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Scarpa (US Patent 5,325,204) and Kurth et al. (US Patent 4,613,978).

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claim 58 and 71 are rejected under 35 U.S.C. 102(b) as being anticipated by Kurth et al. (US Patent 4,613,978).

(1) With regard to claim 58, Kurth et al. discloses an RFI extraction mechanism in a radio front end of a UWB receiver comprising: means for inverting and time-shifting a first impulse response component and a second impulse component in the radio front end, each of said first impulse response component having a first impulsive shape and the second impulse response component having a second impulsive shape; and means of adjusting a relative position of said first impulse response component and second impulse response component so as to pass a UWB signal, but substantially cancel a narrowband interfering signal (col. 1, lines 55-64, col. 2, lines 6-28, col. 3, lines 5-12).

(2) With regard to claim 71, claim 71 inherits all the limitations of claim 58.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-3, 27-31, 59-62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scarpa (US Patent 5,325,204) in view of Kurth et al. (US Patent 4,613,978) as applied to claim 58 above.

(1) With regard to claim 1, Scarpa discloses an RFI extraction mechanism for passing a UWB signal while suppressing a narrowband interference signal that overlap said UWB signal in frequency comprising: a network having an input terminal configured to receive an incoming signal that includes a UWB signal and the narrowband interference signal, an output terminal and a circuit configured to have an impulse response (col. 1, lines 37-40, col. 2, lines 6-7, col. 5, lines 3-18).

However Scarpa does not disclose a first component that has an impulsive shape, and at least one other component delayed in time from said first component and having an impulsive shape, wherein energy from said UWB signal is conveyed to the output terminal and energy from said narrowband interference signal is substantially blocked from being output through the output terminal, and wherein first and second widths of the first and second impulsive shapes, respectively, are less than a reference width of a half cycle of a highest frequency of the UWB signal:

However Kurth et al. discloses in (Fig. 1) a first component that has an impulsive shape (19), and at least one other component delayed in time from said first component and having an impulsive shape (21), wherein energy from said UWB signal is conveyed to the output terminal and energy from said narrowband interference signal is substantially blocked from being output through the output terminal, and wherein first and second widths of the first and second impulsive shapes, respectively, are less than

a reference width of a half cycle of a highest frequency of the UWB signal (abstract. col. 1, lines 7-14, 22-27, col. 3, lines 60-62, col. 4, lines 1-23, col. 5, lines . 44-50, col. 6, lines 12-21, 60-64, col. 7, lines 5-8, 59-65).

Therefore it would have been obvious to one of ordinary skill in the art to modify Scarpa to incorporate a first component that has an impulsive shape, and at least one other component delayed in time from said first component and having an impulsive shape, wherein energy from said UWB signal is conveyed to the output terminal and energy from said narrowband interference signal is substantially blocked from being output through the output terminal, and wherein first and second widths of the first and second impulsive shapes, respectively, are less than a reference width of a half cycle of a highest frequency of the UWB signal in order to transmit a linear-frequency modulated waveform with large bandwidth for high-resolution imaging and low-start frequency for efficient propagation.

(2) With regard to claim 2, claim 2 inherits all the limitations of claim 1. Scarpa further discloses wherein an amount of delay between the first component and the last on second component is electrically adjustable (col. 5, lines 24-26, col. 6, line 68).

(3) With regard to claim 3, claim 3 inherits all the limitations of claim 1. Scarpa further discloses wherein an amount of delay between the first component and the at least one second component is mechanically adjustable (col. 6, line 68, col. 7, line 68, col. 8, lines 1-4).

(4) With regard to claim 27, claim 27 inherits all the limitations of claim 1. Kurth et al. further discloses a monitoring mechanism configured to monitor at least one of a

composite output level; a controller configured to adjust the amount of delay and determine a predetermined delay that results in the composite output level being a minimum in order to synchronize the modulators with respect to the identical modulation of the received signal (col. 10, lines 13-68, col. 11, lines 1-6).

(6) With regard to claim 28, claim 28 inherits all the limitations of claim 27. Kurth et al. further discloses controller is configured to adjust said amount of delay across a range of delay that corresponds with a bandwidth that controls said UWB signal (col. 10, lines 13-68, col. 11, lines 1-6).

(7) With regard to claim 29, claim 29 inherits all the limitations of claim 1. Scarpa further discloses a tracking correlator configured to detect said UWB signal and a controller configured to control operations of the tracking correlator and radio front end (Fig. 3A, col. 3, lines 8-21, col. 7, lines 15-27).

(8) With regard to claim 30, claim 30 inherits all the limitations of claims 29 and 2.

(9) With regard to claim 31, claim 31 inherits all the limitations of claims 30 and 3.

(10) With regard to claim 59, claim 59 inherits all the limitations of claims 1 and 58 above. Kurth et al. further discloses a control receiver configured to detect at least one of a signal energy level and a signal to noise ratio of said narrowband interference signal and provide an indication to said controller regarding a characteristic feature of said narrowband interference signal (col. 4, lines 1-14).

(11) With regard to claim 60, claim 60 inherits all that limitations of claim 59. Scarpa further discloses in (Fig 3B, 100,102) wherein the controller further comprises: a

power sensor configured to determine a power level of said narrowband interference signal and inform said controller (Fig. 3A, 35, 37) of said power level.

(12) With regard to claim 61, claim 61 inherits all the limitations of claim 60. Scarpa further discloses in (Fig. 3B, 126,128) wherein the controller further comprises: a memory configured to hold a table of target biases corresponding to frequencies used by said controller when determining the amount of adjustment.

(13) With regard to claim 62, claim 62 inherits all the limitations of claim 59. Scarpa further discloses in (Fig. 3B, 106,116) wherein another amplifier connected to said first amplifier by a switch (Fig. 3B, 130), said controller being configured to adjust a position of said switch to assist in positioning said first impulse response component and said second impulse response component (col. 9, lines 29-59).

Allowable Subject Matter

7. Claims 4-18, 22-26, 32-44, 72-77 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The following is a statement of reasons for the indication of allowable subject matter: The instant application discloses an RFI extraction mechanism for passing a UWB signal while suppressing a narrowband interference signal that overlaps said UWB signal in frequency. Prior art references show similar methods but fail to teach: **“a first transmission line having a predetermined characteristic impedance matched to a source impedance of a device that provides the incoming signal and configured**

to convey said incoming signal; a second transmission line having a second characteristic impedance and configured to convey a portion of said incoming signal from said first transmission line for a predetermined distance and reflect said portion of said incoming signal; and a receiving transmission line having third characteristic impedance matched to said terminating load and configured to receive respective portions of said incoming signal from said first transmission line and a reflected portion of said incoming signal from said second transmission line and having as an output said output terminal”, as in claims 4, 32; “characteristic impedance of said second transmission line is substantially equal to a parallel combination of said characteristic impedance of said first transmission line and said characteristic impedance of said receiving transmission line”, as in claims 5, 33; “the second transmission line is connected to the first transmission line and the receiving transmission line at one end thereof and a node held at a predetermined potential at an opposite end”, as in claims 6, 34; “an electrical length of said second transmission line is substantially at least one of a quarter wavelength and any number of multiples of $\frac{1}{2}$ wavelength of a primary frequency of said narrowband signal, and a reflection in said second transmission line is caused by said second transmission line appearing to said narrowband signal as a substantially open circuit”, as in claims 7, 35; “wherein an electrical length of said second transmission line is substantially at least one of a $\frac{1}{2}$ wavelength and any number multiples of $\frac{1}{2}$ wavelength of a primary frequency of said narrowband signal, and a reflection in said second transmission line is

caused by said second transmission line appearing to short circuit at the frequencies of interest”, as in claims 8, 36; “wherein the first transmission line having said predetermined impedance of substantially 50 ohms, the receiving transmission line having said third impedance of substantially 50 ohms, and the second transmission line having said second impedance of substantially 25 ohms”, as in claims 9, 37; “a varactor”, as in claims 10, 38; “a two-way splitter having said input terminal an input, a first output, and a second output, a delay element having an input connected to the first output of said two-way splitter”, as in claims 11, 39; “a plurality of amplifiers”, as in claims 12, 40; “an isolation device”, as in claims 13, 41, “isolation device includes an amplifier”, as in claims 14, 17, 42; “isolation device is an inverting isolation device”, as in claims 15, 18, 43; “isolation device configured to couple said splitter to said delay element”, as in claims 16, 44, “delay element includes a transmission line”, as in claim 22; “delay element includes a series of series L and shunt C sections”, as in claim 23; “delay element includes a series of series R and shunt C sections”, as in claim 24; “at least one of said shunt C elements is electrically adjustable”, as in claim 25; “as least one of said shunt C elements being a varactor”, as in claim 26; “length of at least one of said first transmission line and said receiving transmission line being substantially zero”, as in claims 72, 75; “wherein respective lengths of said first, second and receiving transmission lines are independently adjustable in each of the at least one sections so as to allow narrowband signals at multiple frequencies to be suppressed without suppressing the UWB signal by more than

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a predetermined amount”, as in claim 73; “said circuit including a plurality of sections, each of said sections configured to suppress energy at a different frequency “, as in claim 74; “respective lengths of first, second, and receiving transmission lines are independently adjustable in each of the at least one sections so as to allow narrowband signals at multiple frequencies to be suppressed without suppressing the UWB signal by more than a predetermined amount”, as in claim 76; “wherein said circuit including a plurality of sections, each of said sections configured to suppress energy at a different frequency”, as in claim 77.

8. Claims 57, 63-70 are allowed.

9. The following is a statement of reasons for the indication of allowable subject matter: The instant application discloses an RFI extraction mechanism for passing a UWB signal while suppressing a narrowband interference signal that overlaps said UWB signal in frequency. Prior art references show similar methods but fail to teach: **“a first transmission line having a predetermined configured to convey an incoming signal that includes a UWB signal and a narrowband signal; a stub having a second impedance and configured to convey a portion of said incoming signal for a predetermined distance and reflect said portion of said incoming signal; and a receiving transmission line having a third impedance configured to receive respective portions of said incoming signal from said first transmission line and a reflected portion of said incoming signal from said stub”, as in claims 57, 66; “a bi-phase wavelet demodulator”, as in claims 63, 70; “determining an amplifier bias of**

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an amplifier in said radio front end to achieve said relative position; accessing a memory table containing a target value for said amplifier bias corresponding to the predetermined frequency; and sending the target value to the amplifier", as in claim 64.

Conclusion

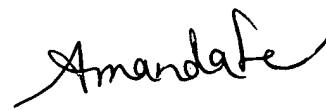
10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cicely Ware whose telephone number is 571-272-3047. The examiner can normally be reached on Monday – Friday, 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 571-272-3056. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

Cicely Ware

cqw
November 30, 2004


AMANDA T. LE
PRIMARY EXAMINER